

Atty Docket No. JCLA8476

Serial No. 10/033,752

**REMARKS****Present Status of the Application**

In the Office Action, claims 1-4 are rejected. Specifically, claims 1, 2 and 4 are objected under 35 USC §112, and title of the specification is objected due to non-descriptive. In addition, claims 1-4 are rejected under 35 USC §103(a) as being unpatentable over Berrou (US Patent No. 5,446,747) in view of Berrou (Near Optimum Error Coding and Decoding, IEEE). Reconsideration and allowance of those claims is respectfully requested.

**Discussion of Amendment of the specification**

FIG. 1 (referred to the prior art) of the application is amended due to obvious mistake. FIG2 of the application is amended to include the original FIG. 3, and thus FIG. 3 is cancelled.

The specification, the drawings and claims of the application are amended due to the obvious mistake of the drawing of FIG. 1, and the corresponding descriptions are amended.

It is believed that the foregoing amendments add no new matter to the present application. Applicants believe that these amendments place the claims in condition for allowance. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

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**Discussion of Office Action Rejections****Response to Objection of Title**

The original title "FAST TURBO-CODE ENCODER" is amended to a new title "TURBO-CODE FAST ENCODING DEVICE."

**Response to Claims Rejections under 35 USC §112**

Claims 1, 2 and 4 are rejected under 35 USC §112, second paragraph as informalities.

In response thereto, first of all, Applicants would like to thank the Examiner for pointing out the informalities. Claim 1 is amended to meet the formality of drafting of claims.

It is believed that the foregoing amendments add no new matter to the present application. Applicants believe that these amendments place the claims in condition for allowance. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

**Response to Claims Rejections under 35 USC §103**

Claims 1-4 are rejected under 35 USC §103(a) as being unpatentable over Berrou (US Patent No. 5,446,747, "US'747") in view of Berrou (Near Optimum Error Coding and Decoding, IEEE, "Berrou'IEEE")

For a proper rejection of a claim under 35 U.S.C. section 103, the cited combination of references must disclose, teach or suggest all elements/features/steps of the claim.

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Independent claim 1, as amended, states:

**Claim 1.** A turbo-code fast encoding device, for a communication system and for outputting a parity information after an encoding process on a turbo-code of a sequential input, wherein, an input bit sequence of the turbo-code is represented as  $d = (d_1, d_2, \dots, d_k, \dots, d_N)$ , where the  $d_k$  is an input bit of the turbo-code fast encoding device at time k, k is from 1 to N, and N is a segment length, wherein, the turbo-code fast encoding device comprising:

a first recursive systematic convolution (RSC) encoder; and  
 a second recursive systematic convolution (RSC) encoder, wherein, the first recursive systematic convolution (RSC) encoder and the second recursive systematic convolution (RSC) encoder comply to

$$y_{1,k} = d_k + \sum_{i=1}^M g_{1,di} a_{1,k-i}$$

$$y_{2,k} = d'_k + \sum_{i=1}^M g_{2,di} a_{2,k-i}$$

Wherein,  $d_k$  is the input bit and  $d'_k$  is a permutation bit of the input bit of the turbo-code fast encoding device at time k,  $y_{1,k}$  and  $y_{2,k}$  are the parity information corresponding to  $d_k$  and  $d'_k$ ,  $g_{1,di}$  and  $g_{2,di}$  are parameters that is generated by a first encoder feed-forward generator and a second encoder feed-forward generator, the parameters are either 0 or 1, whereas,  $a_{1,k-i}$  and  $a_{2,k-i}$  are generated by  $i$ th register of the first encoder RSC and the second RSC encoder at time k respectively.

(Emphasis Added)

Independent claim 1 is allowable for at least the reasons that US'747 or Berrou'IEEE, let alone or combined thereof, does not disclose, teach or suggest the feature that " $y_{1,k}$  and  $y_{2,k}$  are the parity information corresponding to  $d_k$  and  $d'_k$ ,  $g_{1,di}$  and  $g_{2,di}$  are parameters that is generated by a first encoder feed-forward generator and a second encoder feed-forward generator" as highlighted above.

Referring to equations (1a), (1b) and (2), and the descriptions between equations (1b) and (2) of page 1262 of Berrou'IEEE, it is noted that, in equation (2), only three kind of parameters

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( $a_k$ ,  $a_{k-i}$ ),  $d_k$  and  $r_i$  are represented, wherein  $a_k$  and  $a_{k-i}$  are belong to the same sequence. However, the equation in claim 1 of the application includes four kind of parameters  $y_k$  (including  $y_{1,k}$  and  $y_{2,k}$ ),  $a_{k-i}$  (including  $a_{1,k-i}$  and  $a_{2,k-i}$ ),  $d_k$  (including  $d_k$  and  $d'_k$ ) and  $g_{di}$  (including  $g_{1,di}$  and  $g_{2,di}$ ), wherein as described in claim1, “ $y_{1,k}$  and  $y_{2,k}$  are the parity information corresponding to  $d_k$  and  $d'_k$ ” and “ $a_{1,k-i}$  and  $a_{2,k-i}$  are generated by  $i$ th register of the first encoder RSC and the second RSC encoder at time  $k$  respectively.”

In addition, “ $g_{1,di}$  and  $g_{2,di}$  are parameters that is generated by a first encoder feed-forward generator and a second encoder feed-forward generator” is not disclosed, taught or suggested by US'747 or Berrou'IEEE.

Accordingly, the meaning and function of the equations of claim 1 of the application are different from equation (2) of Berrou'IEEE.

Thus, US'747 or Berrou'IEEE, let alone or combined thereof, does not anticipate claim1. The withdrawal of the rejection and the allowance of claim 1 are therefore earnestly solicited.

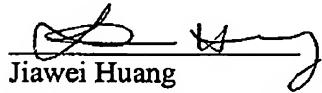
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**CONCLUSION**

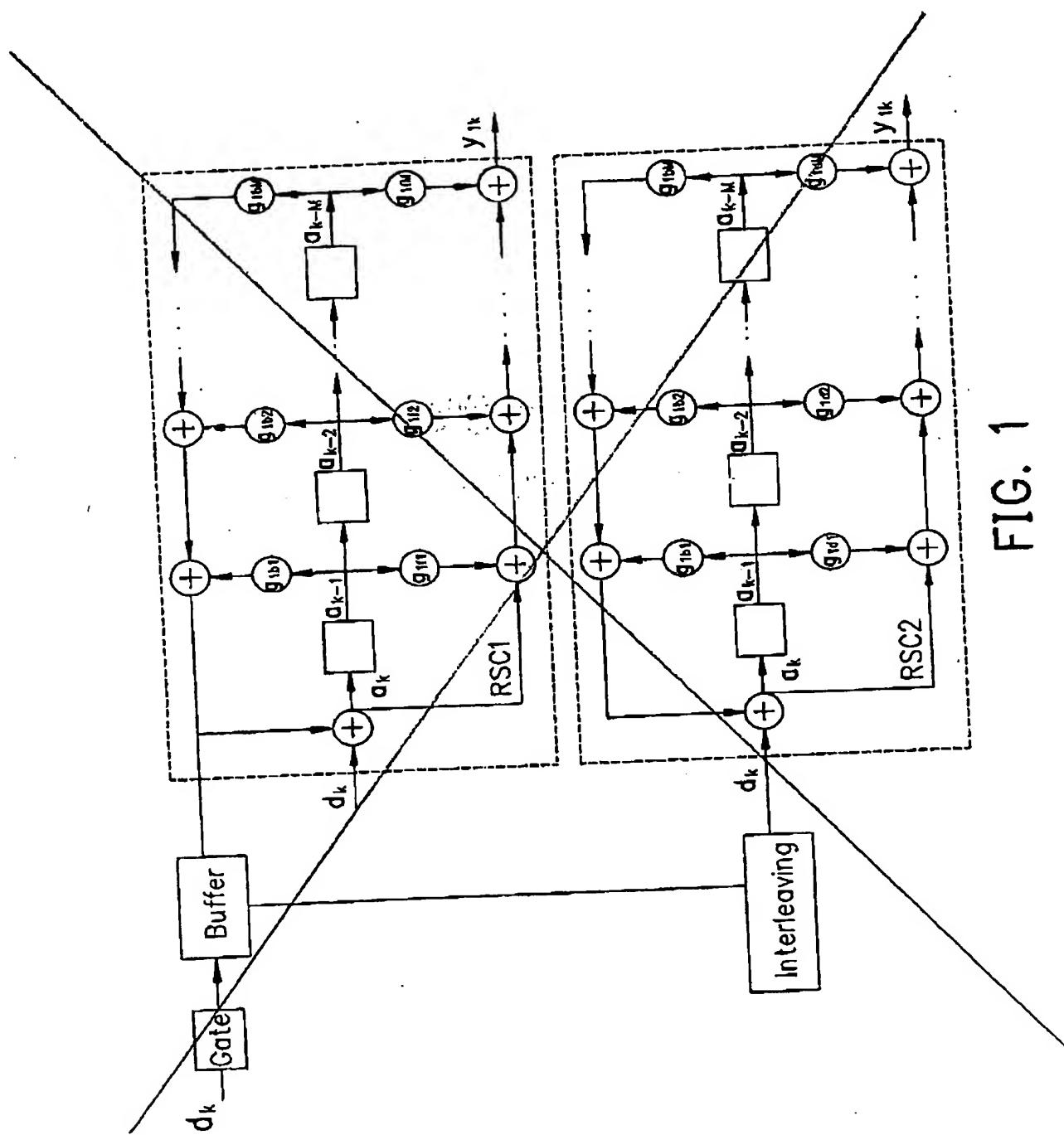
For at least the foregoing reasons, it is believed that the pending claim 1 is in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

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## Marked Version



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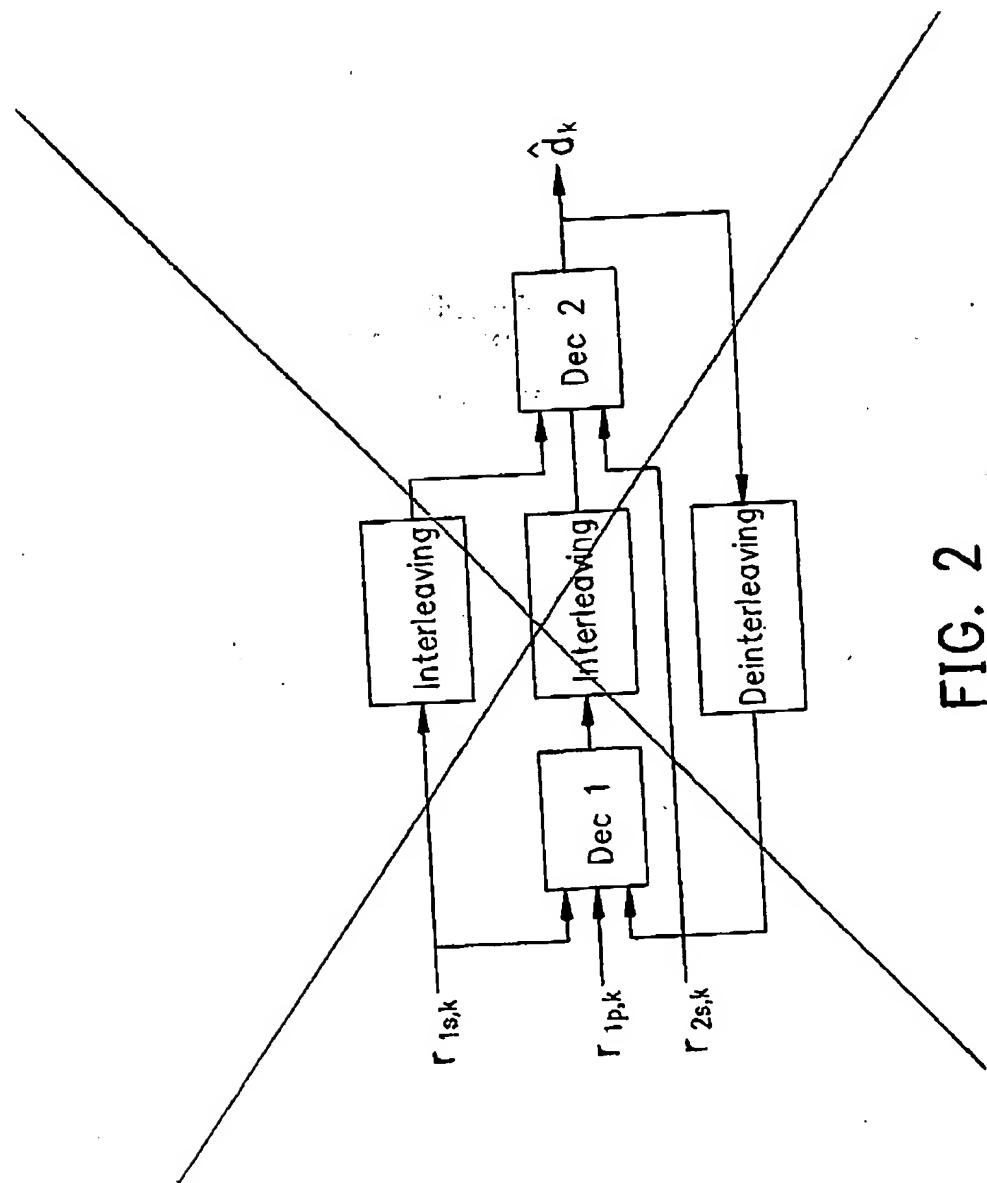
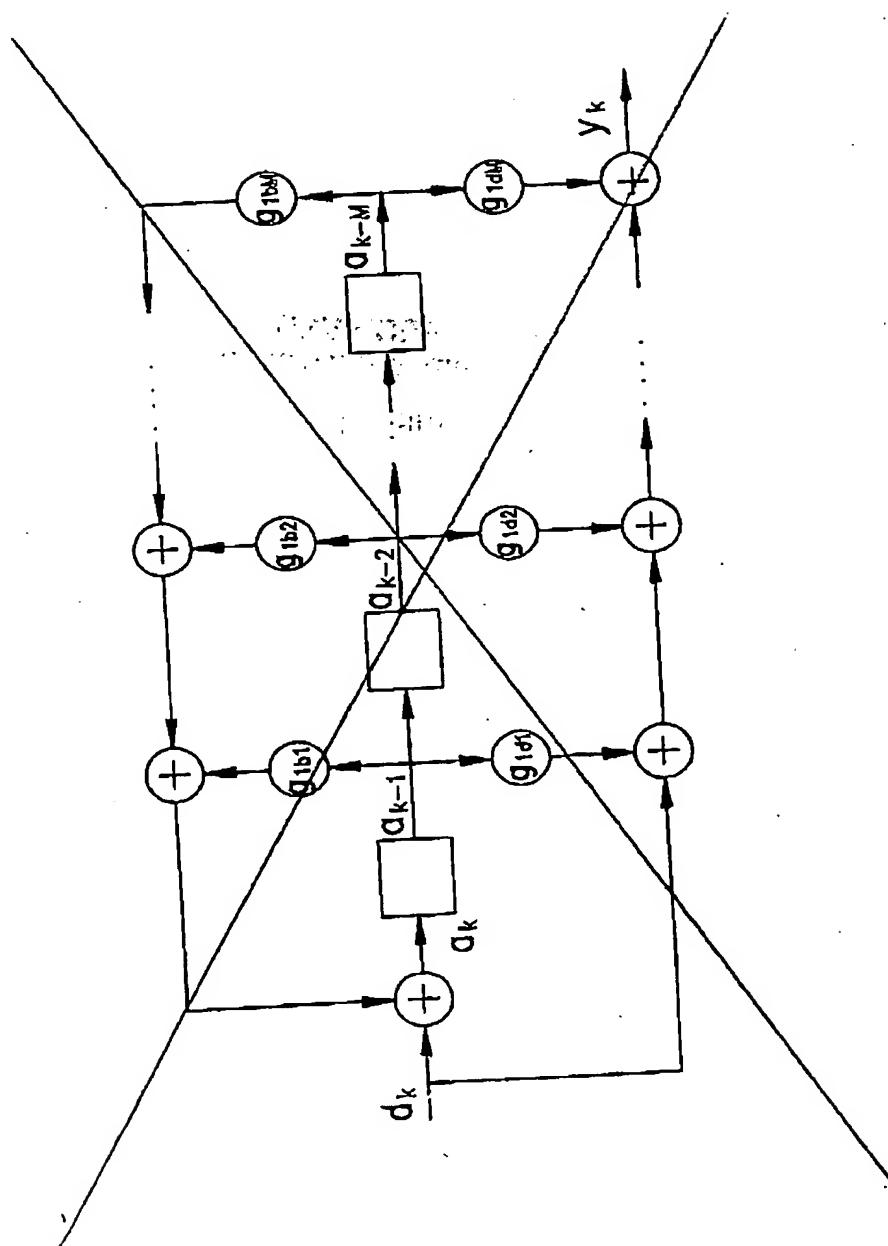
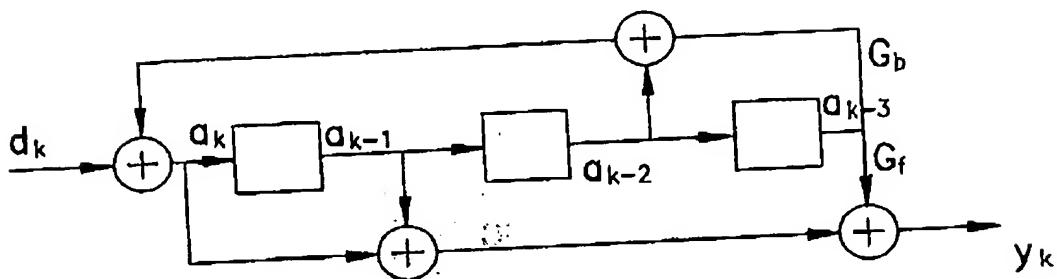


FIG. 2

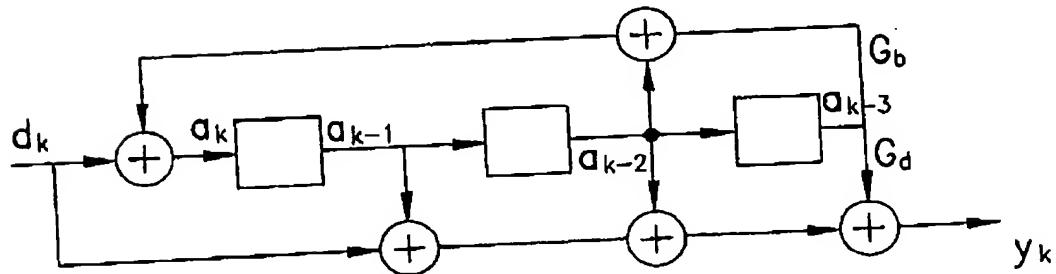
**Marked Version****FIG. 3**

## Marked Version



~~FIG. 4 (PRIOR ART)~~

~~FIG. 3(PRIOR ART)~~



~~FIG. 5~~

~~FIG. 4~~